

ART. V.—*A Striking Example of Rock Expansion by Temperature Variation in Sub-Arid Western Australia.*

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(With Plate II.).

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A rather remarkable example of rock expansion, due to temperature-variation, having come under the writer's notice in sub-arid Western Australia, its record may be of value. It occurs about ten miles to the north-north-west of Comet Vale, a mining township about sixty miles north of Kalgoorlie, on the Kalgoorlie-Laverton railway line. It is, therefore, situated well in the interior of Western Australia, in an area of low rainfall and of great temperature variations.

The rock is a biotite granite, which outcrops as a bare rounded hill rising to an inconsiderable height above the surrounding plain. This rock is, therefore, constantly exposed to the weather; and, owing to the great variations in daily and nightly temperature, it peels off in layers or bands of various thickness, with the result that the rock assumes the well-known rounded appearance characteristic of granite. This peeling or flaking off is the "desquamation" of Richthofen.¹

The particular occurrence referred to is a surface slab of granite, on the lower slope of the hill, abutting a "gnamma," or natural rock-hole. This slab is 10 feet long, two feet six inches wide, and ranges from one and a half to four inches in thickness. It is separated from the parent mass, except at its ends (which here mean the terminations roughly at right angles to its length). These ends pass into rock of similar character, but the slab rises in a gentle curve towards the centre, where it is not resting on anything (except possibly at one point on a loose boulder that has drifted into the cavity). On the uphill and downhill sides of the slab, at the centres of the respective sides, the height of the lower face of the slab from the surface of the solid rock below is seven inches and four and a-half inches respectively. The slab is cracked

1. Hume, W. F., "Professor Walther's Erosion in the Desert Considered." *Geol. Mag.*, Decade VI., Vol. I., Nos. 595-6 (1914), p. 21.

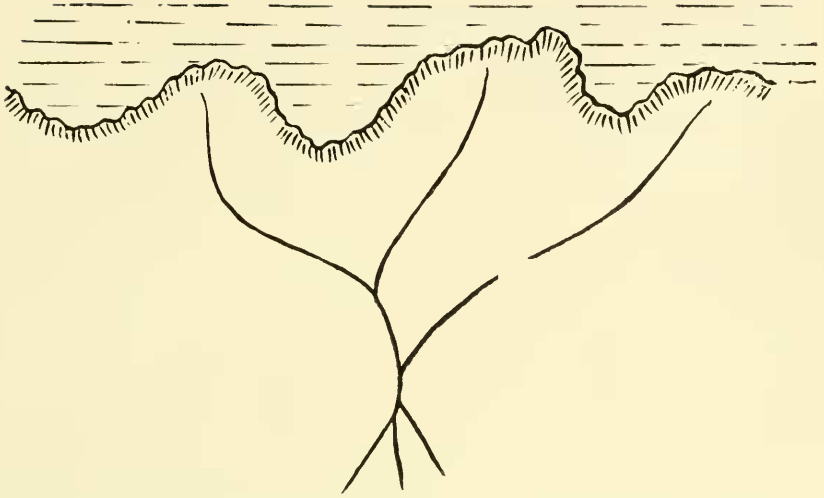


Fig. 1—The figure shows the tiny rain furrows running from the foot of the “cliffs,” uniting, and then dying out as “distributaries.”

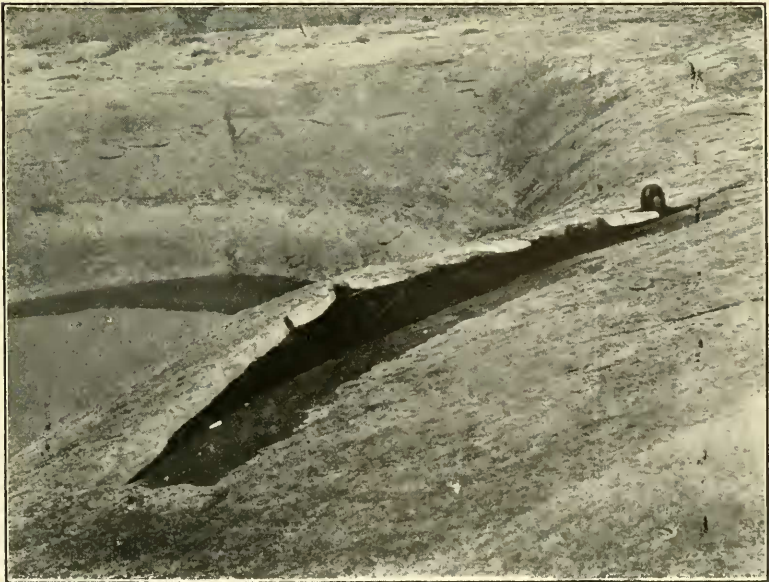


Fig. 2.